MYCOTAXON

*Volume 112, pp. 357–360* *April–June 2010*

# Lichens of Ordu Province, Turkey

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**Abstract** – 314 taxa belonging to 99 genera are reported from Ordu province in the Central Black Sea region of Turkey. 263 taxa are reported for the first time from the province, and three species, *Arthopyrenia persoonii*, *Sphinctrina leucopodia,* and *Verrucaria submersella*, are new records for Turkey. The full checklist is available on http://www.mycotaxon.com/resources/weblists.html

**Key words** – Aydoğan hill, biota, biodiversity

## Introduction

In the last two decades lichenological studies in Turkey have increased remarkably (e.g., Candan & Özdemir Türk 2008, Halıcı & Aksoy 2009, John & Nimis 1998, Kınalıoğlu 2009, Özdemir Türk 2003, Öztürk et al. 2005, Yazici & Aptroot 2008). However, the lichen composition of some provinces is still insufficiently known. One of these provinces is Ordu, situated in the central part of the Black Sea region of Turkey (Fig. 1). There have been four studies referring to lichens in Ordu province (Steiner 1909, Kınalıoğlu et al. 1998, John et al. 2000, Aslan et al. 2006). In these studies, a total of only 94 lichen taxa are cited from the province, suggesting that its lichen biota is very poorly known. The present study adds further information to our knowledge of the lichen biota of Turkey and in particular of Ordu.

Data here are compiled from Ordu, based on collections from 63 sites visited between 20 March 2004 and 2 November 2008. Turkey has three main floristic regions: the Euro-Siberian floristic region, the Mediterranean floristic region, and the Irano-Turanian floristic region. Ordu is located within the boundaries of the Euxianian section of the Euro-Siberian floristic region. It is situated at 40°18'–41°08' N, 36°52'–38°12' E at altitudes ranging from sea level to 3038 m. The province has an area of 6001 km$^2$, generally of rough topography. The most important peaks of Ordu are Kırgızlar peak (3038 m), Aşıt peak (2569 m), Eriço peak (2298 m), Deveci Mountain (1907 m), and Aydoğan peak

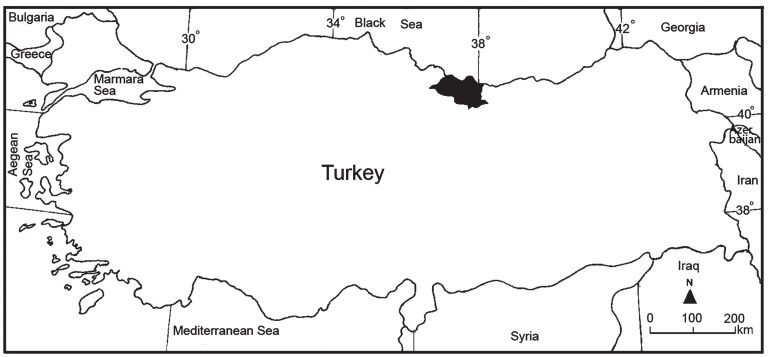


Fig. 1. Map of Turkey showing Ordu province.

(1971 m). There are also some facies plateaux at high altitudes, mainly Çambaşı, Perşembe, Keyfalan, Topçam, Argan, and Aydoğan. Upper Cretaceous volcanic facies (agglomerata, dacite, diorite, granodiorit) are mostly present. There are various big streams in the province such as Melet stream, Bülbül stream, and Civil stream. Small plains, which cover relatively minor areas, exist near the coastal area and stream mouths. The wide altitudinal variation, rough topography, influence of the adjacent sea, and big streams of the Ordu provide a wide range of climatic zones. However, oceanic climate prevails in Ordu. The mean rainfall per year is 1029.2 mm, the highest precipitations occur in October and December and the lowest in May and July. On average, there are 178 rainy days and 6 snowy days on a yearly basis. The mean annual maximum temperature is 27.5°C in August, while the mean minimum temperature is 3.9°C in February. The mean annual relative humidity is 76%. Vegetation cover varies with climate and altitude. Up to 1500 m, deciduous trees (*Alnus* spp., *Carpinus* spp., *Castanea sativa*, *Fagus orientalis*, *Quercus* spp.) and shrubs (e.g., *Corylus* spp., *Rhododendron* spp.) prevail. *Corylus* species are important crop plants as well. At 1500–1900 m the forest consists of *Picea orientalis* and *Pinus sylvestris* (Atalay 1994), which provide suitable habitats for a rich lichen flora. Above 1900 m alpine meadows are dominant.

## Materials and methods

The collections were identified following standard techniques using various lichen guides (Brodo et al. 2001, Goward 1999, Purvis et al. 1992, Wasser 2005, Wirth 1995). Air-dried samples were examined using a stereo microscope and a light microscope. All samples are stored in the herbarium of the Faculty of Science and Arts, Giresun University, Giresun, Turkey. Lichen species new to Turkey are indicated by # in the Checklist, those new to Ordu province by *.

## Results and discussion

Three of the lichen species in the Checklist are newly recorded for Turkey: *Arthopyrenia persoonii* A. Massal., *Sphinctrina leucopoda* Nyl., and *Verrucaria submersella* Servit are newly recorded for Turkey. *Arthopyrenia persoonii* might have been overlooked in Turkey in the past because of its inconspicuous appearance; the species, which colonizes the bark of deciduous trees such as *Fraxinus* sp. and *Juglans* sp. in Europe (Wirth 1994 & Berger et al.), was collected from the smooth bark of *Juglans regia*.

*Sphinctrina leucopoda* is pathogenic or commensalistic on *Pertusaria pertusa* (more rarely on other *Pertusaria* and *Diploschistes* species), in Europe and America particularly on old deciduous trees (Purvis et al. 1992); in Ordu it was lichenicolous on *Pertusaria pertusa* on *Corylus* sp. at 1080 m. *Verrucaria submersella,* which grows on wet noncalcareous rocks in the mountains of middle Europe (Ozenda & Clauzade 1970, Clauzade & Roux 1985), seems restricted to the stream banks at altitudes >1800 m. *Ionaspis lacustris* and *Usnea intermedia* are recorded for the second time from Turkey. *Ionaspis lacustris* is known throughout Europe and North America (Purvis et al. 1992) and in Europe is mainly found in the mediterranean mountain regions. In Turkey, it has been previously recorded from Akşehir (Steiner 1916). *Usnea intermedia* is known from Europe often on coniferous trees in submontane environments (Randlane et al. 2009); in Turkey, it was previously recorded from Bursa (Verseghy 1982).

The richness of geographical features of the Ordu (wide altitudinal range, rough topography and maritime influence) offers a wide range of niches so that a rich lichen biodiversity can be expected. Furthermore, due to the ecological features of the province, lichen species distributed elsewhere in Europe, America, and Asia co-occur with local lichens, leading to a rich lichen diversity. The number of known lichen taxa in Ordu, including records from the present study, is now 357. However, additional studies are necessary to extend the knowledge of the Ordu lichen biota, with the inner parts of the province particularly poorly explored.

### Acknowledgements

The identification of numerous samples by Dr. H. Sipman (Berlin, Germany) is gratefully acknowledged. I also thank peer-reviewers Dr. O. Vitikainen & Dr. B. Owe-Larsson for their revisions and advice. This study was partly supported by grant from the Karadeniz Technical University Scientific Research.

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